Remarks

Claims 1 to 6 are pending.

In view of the following, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is therefore respectfully requested.

With respect to paragraphs one (1) and two (2) of the Office Action, the Abstract was objected to as to language and format. The abstract has been amended as suggested. In accordance with 37 C.F.R. § 1.121, a Substitute Specification and Abstract accompanies this response. The abstract was also objected to for the presence of the text "Fig.1" on the last line. The text has been deleted in the Substitute Specification. Applicants therefore respectfully request withdrawal of the objection.

With respect to paragraph three (3), the specification was objected to for lack of headings. While headings may be suggested by the Rules, they are not required. Nevertheless, to facilitate matters, the Substitute Specification accompanying this amendment includes section headings. No new matter has been added. Applicants therefore respectfully request withdrawal of the objection.

With respect to paragraph four (4), the specification was objected to because of the reference to claim 1 at line 14 of page 1. This reference has been removed in the Substitute Specification. Applicants therefore respectfully request withdrawal of the objection.

With respect to paragraph five (5), the disclosure was objected to because the listing of claims was introduced by the heading "CLAIMS". In view of the amendment, Applicants respectfully request withdrawal of the objection.

With respect to paragraph six (6), the drawings were objected to under 37 CFR § 1.83(a). It is respectfully submitted that the objection may be due to a misunderstanding of the terminology adopted in the claims.

The original claim 2 recited "locking means". The Office Action asserted that such locking means were not shown in the drawings. The locking of a video apparatus to an incoming synchronization signal is an available technique, on which essentially various analog video systems are based. In Figure 3 an input processing means INPROC3 is shown, which receives a signal from a preceding camera (not shown) and supplies it to the output

processing means OUTPROC3. No video equipment can receive an input signal without somehow locking its own synchronization to it.

The original claims 4 and 5 recited "means to insert". The Office Action asserts that such means to insert were not shown in the drawings. In Figure 3, the output processing means OUTPROC3 combines the signal from INPROC3 with the signal from the sensor SEN3. Therefore, it is clear that the insertion of the picture from sensor SEN3 into the input signal is performed by the output processing means OUTPROC3.

While the objections may not be agreed with, the claims as presented better clarify the claimed subject matter. Claim 2 as presented replaces "locking means" with "input processing means," and Claims 4 and 5 as presented replaces "means to insert" with "output processing means." No new matter has been added. In view of the foregoing, it is respectfully requested that the objection be withdrawn.

With respect to paragraph seven (7), claim 2 was rejected under 35 U.S.C. § 112, first paragraph, as to the enablement requirement. It is respectfully submitted that the rejection should be withdrawn for at least the following reasons.

The original claim 2 recited "locking means to horizontal synchronization, vertical synchronization and color carrier phase-locking a camera to a previous camera." To address the objections to the drawings, the words "locking means" have been replaced with "input processing means" in claim 2 as presented.

As explained above, the locking of a video apparatus to an incoming synchronization signal is an available technique on which various analog video systems are based. In Figure 3 an input processing means INPROC3 is shown, that receives a signal from a preceding camera (not shown) and supplies it to the output processing means OUTPROC3. It is clear that no video equipment can receive an input signal without somehow locking its own synchronization to it.

It is believed and respectfully submitted that the assertions of the Office Action simply do not reflect the proper standard for determining whether a patent application complies with the enablement requirement that the specification describe how to make and use the claimed subject matter. (See M.P.E.P. § 2164). This standard is not based on the subjective beliefs of an examiner, but must be based on reasonable arguments that are

supported by proper evidence in the context of the claims.

The Supreme Court has established the appropriate standard as requiring the establishment by proper evidence of whether *any experimentation for practicing the invention was undue or unreasonable.* (See M.P.E.P. § 2164.01 (citing Mineral Separation v. Hyde, 242 U.S. 261, 270 (1916); In re Wands, 858 F.2d. 731, 737, 8 U.S.P.Q.2d 1400, 1404 (Fed Cir. 1988))). Thus, the enablement test is whether "one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art *without undue experimentation.*" (See id. (citing United States v. Teletronics, Inc., 857 F.2d 778, 785, 8 U.S.P.Q.2d 1217, 1223 (Fed. Cir. 1988))).

The Federal Circuit has also stated that there are many factors to be considered in determining whether a specification satisfies the enablement requirement. These factors include but are not limited to the following: the breadth of the claims; the nature of the invention; the state of the prior art; the level of ordinary skill; the level of predictability in the art; the amount of direction provided by the inventor; the existence of working examples; and the quantity of experimentation needed to make or use the invention based on the disclosure. (See id. (citing In re Wands, 858 F.2d at 737, 8 U.S.P.Q.2d at 1404 and 1407)). The Federal Circuit has further stated that it is "*improper* to conclude that a disclosure is not enabling based on an analysis of only one of the above factors," and that an examiner's analysis must "consider all the evidence related to each of these factors" so that any nonenablement conclusion "must be based on the evidence as a whole." (See M.P.E.P. § 2164.01).

Moreover, to reject a claim as not being enabling, an examiner bears the initial burden of establishing exactly why the "scope of protection provided by a claim is not adequately enabled by the disclosure." (See id. (citing In re Wright, 999 F.2d 1557, 1562, 27 U.S.P.Q.2d 1510, 1513 (Fed. Cir. 1993))). Accordingly, a specification that teaches the manner and process of making and using an invention in terms that correspond in scope to those used in describing and defining the claimed subject matter complies with the enablement requirement. (See id.)

In particular, to properly establish enablement or non-enablement, the Office must make use of proper evidence, sound scientific reasoning and the established law. In the case of Ex Parte Reese, 40 U.S.P.Q.2d 1221 (Bd. Pat. App. & Int. 1996), a patent examiner

rejected (under the first paragraph of section 112) application claims because they were based on an assertedly non-enabling disclosure, and was promptly reversed because the rejection was based only on the examiner's subjective belief that the specification was not enabling as to the claims. In particular, the examiner's subjective belief was simply not supported by any "evidence or sound scientific reasoning" and therefore ignored recent case law -- which makes plain that an examiner (and not an applicant) bears the burden of persuasion on an enablement rejection.

More particularly, the examiner in Ex parte Reese was reversed because the rejection had only been based on a conclusory statement that the specification did not contain a sufficiently explicit disclosure to enable a person to practice the claimed invention without exercising undue experimentation -- which the Board found to be merely a conclusory statement that only reflected the subjective and unsupported beliefs of a particular examiner and that was not supported by any proper evidence, facts or scientific reasoning. (See id.). Moreover, the Board made clear that it is "incumbent upon the Patent Office . . . to back up assertions of its own with acceptable evidence", and also made clear that "[where an] examiner's 'Response to Argument' is not supported by evidence, facts or sound scientific reasoning, [then an] examiner has not established a *prima facie* case of lack of enablement under 35 U.S.C. § 112, first paragraph" in the context of the claims. (See id. at 1222 & 1223; italics in original).

In the present case, it is respectfully submitted that the Office Action has not satisfied the foregoing for establishing that undue experimentation would be required, and it is therefore respectfully requested that the enablement rejection be withdrawn.

With respect to paragraph eight (8), claim 6 was rejected under 35 USC § 102(b) as anticipated by U.S. Patent No. 5,144,445 (Higashitsutsumi).

To anticipate a claim under § 102(b), a single prior art reference must identically disclose each and every claim element. M.P.E.P. § 2131. Claim 6 recites "coupling the information of the pictures on a chain." It is respectfully submitted that Higashitsutsumi does not identically disclose (or even suggest) every feature of claim 6, as explained below.

The "Higashitsutsumi" reference refers to an apparatus combining several photoelectric transducers (charge-coupled devices, or CCDs) each of which has a lower

resolution of a display apparatus, for example, ½ in each of the horizontal and vertical directions. Special horizontal and vertical synchronization signals are produced by a **centralized** controller and sent **simultaneously** to each of the CCDs. The CCD outputs are then combined in a single composite picture, either by a dedicated circuit (Fig. 9) or by the cameras themselves (Fig. 16 and 18). In the latter case, the cameras are connected **in parallel** to a common bus signal. On the other hand, a "chain" cannot be construed to be a parallel or bus connection. A bus connection can only transmit one signal and cannot transmit two pictures at the same time, let alone three (the two original pictures, plus their combination). This is in sharp contrast with a **chain** configuration, where each element communicates only with the elements immediately before and after it. It is therefore apparent that "Higashitsutsumi" does not identically disclose (or even suggest) a "chain" connection as presently claimed.

For at least the foregoing reasons, claim 6 is allowable.

With respect to paragraph nine (9), claims 1-6 were rejected under 35 USC § 102(b) as anticipated by JP 5-41816 (Hidenori).

The "Hidenori" reference refers to a chain of cameras which perform a switching function. Figure 1 of "Hidenori" has a signal generator 6 that locks to the previous camera or generates its own synchronization based on the detection of the signal on the incoming line 2. Likewise, signal switcher 9 selects a signal from the incoming line 2 or the CCD 7 depending on the same detection. The selection between the two sources is performed at a **frame period** set by switching period setting terminals 11 (paragraph [0018]). A similar embodiment, in Figure 2, concerns a signal switcher a activated by an alarm. The signal switcher 9 performs the same function in all other embodiments (Figs. 3, 5, 7, 9, 10).

While the rejections may not be agreed with, to facilitate matters, claims 1 and 6 have been revised to better clarify the claimed subject matter. Claim 1 as presented provides a "first camera in the chain acts as a system master and the other camera(s) are locked to a previous camera in the chain, each camera inserting a picture on the CVBS line." Claim 6 provides for "coupling the information of the pictures on a chain of cameras, each camera inserting a picture on the CVBS line." It is therefore submitted that "Hidenori" does not identically disclose (or even suggest) the insertion of a picture on the CVBS line. A signal

switching function is more limited in scope as compared to picture insertion. It is therefore submitted that Claims 1 and 6 are allowable, as well as claims 2 to 5 which depend on claim 1.

The "Hidenori" reference also does not identically disclose (or suggest) the insertion of a part of the picture as in claim 4 on a downscaled version of the picture as in claim 5.

Accordingly, claims 1 to 6 are allowable.

With respect to paragraph ten (10), claim 6 was rejected under 35 USC § 102(b) as anticipated by U.S. Patent No. 5,436,618 (Van Steenbrugge).

The "Van Steenbrugge" reference refers to a multi-apparatus consumer electronics system. The apparatuses are interconnected by means of two bus structures: One based on the SCART or Peritel connector, the other based on the Domestic Digital Bus (D2B) protocol. Both interconnections are of a bus type, i.e., all devices are connected in parallel. No provision is made in either protocol for a series, or daisy-chain, connection. Some of the apparatuses will always function as sources of signal (for example, a video disc or DVD player), and others as receivers (for example, a monitor). Some of the apparatuses will function both as sources and as receivers (for example, a VCR). None of the interconnections are directional in nature. The labeling of pins as "input" and "output" simply helps in the proper wiring of the system. It can be observed in FIG. 2 that, for example, pin "CVBS up (out)" on the left-hand side is internally *shorted* to pin "CVBS up (in)" on the right-hand side. This means that *all apparatuses see the same video signal at their inputs/outputs.*

On the other hand, with the exemplary embodiments of the presently claimed subject matters inputs and outputs are clearly defined, *and are not internally shorted together.* Each camera sees a different signal with the system's operation. This is true even for only two apparatuses. If both apparatuses share the same connection, there is no other connection to output the combined signal of the two apparatuses.

Claim 6 recites "coupling the information of the pictures on a chain." A bus connection can only transmit one signal and cannot transmit two pictures at the same time, let alone three (the two original pictures, plus their combination).

Finally, "Van Steenbrugge" refers only to a multi-apparatus system without referring to the picture-in-picture function. The system of "Van Steenbrugge" could not be used for

performing a picture-in-picture functionality, because the system can only carry a single video signal. At least two simultaneous signals are necessary to have a picture-in-picture functionality.

For at least the foregoing reasons, claim 6 as presented, is allowable.

With respect to paragraph eleven (11), claims 1 and 3-5 were rejected under 35 USC § 103(a) as obvious over U.S. Patent No. 5,436,618 (Van Steenbrugge).

As explained above, "Van Steenbrugge" does not disclose or suggest a picture-in-picture system but simply an interconnection scheme where all apparatuses are parallel-connected and communicate in bus fashion. In contrast, claim 1 is a system whereby "the other cameras are locked to a previous camera in the chain." Once again, a chain is not simply a bus (parallel) connection of cameras. Neither would it make sense to short the outputs of a number of cameras together. To perform a picture-in-picture function, one could not apply the "Van Steenbrugge" system but would need to develop another system, which would not be obvious to a person skilled in the art how to do this.

For at least the foregoing reasons, claim 1 is allowable, as are its dependent claims 3 to 5.

With respect to paragraph twelve (12), International Application WO 98/39739 (Josefsson) refers to a system for motion analysis wherein a number of cameras are connected in a series (daisy-chain) configuration. To reduce computational load for a computer placed at the end of the chain, each camera processes the input picture and generates data with higher information content, such as the position of markers on the picture. These data are supplied to the next camera in the chain (page 11, lines 15-20). The computer at the end of the chain receives the aggregate, pre-processed data of all the cameras instead of a picture to be processed, thus reducing the computational load on the computer.

The "Josefsson" reference refers to a system wherein *cameras do not combine their respective pictures*, but rather combine data with high information content. The final result is not a picture but the data themselves. An application to combination of pictures (picture-in-picture system) is not identically disclose (or even suggested). Therefore, it is respectfully submitted that "Josefsson" does not identically disclose (or suggest) the presently claimed subject matter.

With respect to paragraph thirteen (13), the substitute specification corrects a number of typographic, spelling (e.g., "analyzes" instead of "analysis", "nano second" instead of "nanosecond"), and grammatical errors. All the amendments are of a clerical nature and do not add new matter to the disclosure.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all of the presently pending claims are allowable, and it is therefore respectfully requested that the objections and rejections be withdrawn. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is respectfully requested.

Respectfully Submitted,

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~~Multi-picture in picture system~~ MULTI-PICTURE IN PICTURE SYSTEM

FIELD OF THE INVENTION

The invention relates to a multi-picture in picture system comprising at least two cameras linked as a chain together.

BACKGROUND INFORMATION

Cameras linked as a chain are, for example, known from W098/39739 wherein a system is described for data processing ~~with~~ for motion ~~analyzes. The~~ analysis, the different cameras having different degrees of information content.

The television/monitor, which receives the pictures from the different cameras, creates the total picture to be viewed.

SUMMARY OF THE INVENTION

The invention has for one of its objects to provide a multi-picture in picture system, which is economically constructed.

~~To this end a multi-picture in picture system according to the invention comprises the features of claim 1.~~

~~In this way a~~ A multi-picture in picture system is obtained using a CVBS-line (Composite Video Baseband Signal). By adding each picture on the CVBS-line each picture can have the maximum frame rate.

A first camera acts as a system master whereby the other camera(s) are each locked to a previous camera.

By locking each camera to a previous camera problems of different delays are overcome. Each camera adds its part of the picture at the place in the daisy-chain cable where the camera also is locked. So each locking place and insertion place is the same which results in no problems with relation to unknown delays.

This overcomes the problem prior art systems have, in that ~~is such systems have to cope with this kind of problem because~~ the locking of the color carrier has to have a precision of about 5 ~~nano seconds~~ nanoseconds while a cable with a length of 100 meters can have a delay of 1 ~~micro second~~ microsecond.

The length of the cable which determines the total delay is no longer relevant.

Instead of the known systems where the television/monitor has to cope with the multi picture in picture creation, in the system according to the invention the television/monitor ~~has not to~~ does not have to cope with this situation ~~so~~ and therefore can be much cheaper.

In the system according to the invention each camera creates its picture at the "place" in the total picture.

~~Embodiments of the invention are described in the dependent claims.~~

These and other objects of the invention are described hereinafter by way of example with reference to the non-limiting examples.

~~Herein shows:~~

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 illustrates schematically an example of a multi-picture in picture system according to the invention[[,]].

Fig. 2 illustrates schematically an example of a screen with multi-picture in pictures~~, and~~.

Fig. 3 illustrates schematically an example of a camera for use in a system according to the invention.

DETAILED DESCRIPTION

Figure 1 shows schematically an example of a multi-picture in picture system MPIPS according to the invention.

In this example ~~this~~ the system comprises ~~n camera's~~ a number of cameras CAM1-CAMn, linked together with a CVBS signal as a daisy chain. After the last camera CAMn a monitor MON is coupled to make the result visible on a screen S of the monitor.

Each camera can insert on the CVBS line a part of its observed picture or a downscaled version of that picture. The location and size of the inserted picture is programmable ~~per~~ for each camera.

A first camera CAM1 acts as a system master and the other cameras are locked to the previous camera to horizontal synchronization, vertical synchronization and color phase locked to the ~~system/master~~ system master. In this manner it is possible to cope with different delays. Because the insertion of the picture and the locking is at the same place and timing [[so]] no differences in delay occur.

Figure 2 shows a picture screen P2 with nine pictures 1-9 in a multi-picture in picture, whereby each picture is ~~made ready in~~ prepared by each camera with the maximum frame rate on the CVBS signal.

~~Instead of~~ Instead, the prior art discloses systems where the pictures 1-9 don't have the maximum frame rate and where the pictures are also not prepared on the CVBS-line.

Figure 3 shows schematically a camera CAM3x coupled with an input I3 to a previous camera (~~x-1~~ not shown), on which camera ~~(x-1)~~ the camera CAM3x is locked. The camera records a picture on a sensor SEN3 and supplies the recorded picture to the daisy chain (CVBS-line) at the output O3.

The input I3 is coupled to input processing means ~~INPROS3~~ INPROC3. The input processing means supply a signal to output processing means ~~OUTPROS3~~ OUTPROC3. The output processing means also receives the signal from the sensor SEN3.

In this way a multi-picture in picture system is obtained using a CVBS-line (Composite Video Baseband Signal). By adding each picture on the CVBS-line each picture can have the maximum frame rate.

A first camera acts as a system master whereby the other camera(s) are each locked to a previous camera.

By locking each camera to a previous camera problems of different delays are overcome. Each camera adds its part of the picture at the place in the daisy-chain cable where the camera also is locked. So each locking place and insertion place is the same which results in no problems with relation to unknown delays.

This overcomes the problem prior art systems have, that is such systems have to cope with this kind of problem because the locking of the color carrier has to have a precision of about 5 nano seconds while a cable with a length of 100 meters can have a delay of 1 micro second.

The length of the cable which determines the total delay is no longer relevant. Instead of the known systems where the television/monitor has to cope with the multi-picture in picture creation, in the system according to the invention the television/monitor has not to cope with this situation so can be much cheaper.

In the system according to the invention each camera creates its picture at the "place" in the total picture.

~~The man~~ Those skilled in the art will be well aware that the above examples are not limitative for the invention concerned. It is of course possible to change the number of

pictures or cameras. One of the main items of the invention is that in the system according to the invention for the main part the cameras prepare the pictures to be displayed on the television/monitor and not the television/monitor.

ABSTRACT

~~Do display more than one picture on a television/monitor multi-picture in picture systems are known.~~

~~The invention proposes a~~ A multi-picture in picture system in which each camera is coupled in a daisy chain and adds its part of the complete picture on a CVBS-line. ~~One of the main differences is that now the~~ The television/monitor doesn't have to prepare the complete picture because each camera does it. ~~Further~~ Furthermore, no problems with locking occur because each camera adds its picture at the "place" where it is also locked.